Feb. 18, 1969 R. L. CAMPBELL 3,427,705

NONCURLING FLOOR PROTECTOR

Filed Aug. 8, 1967

FIG. 1.

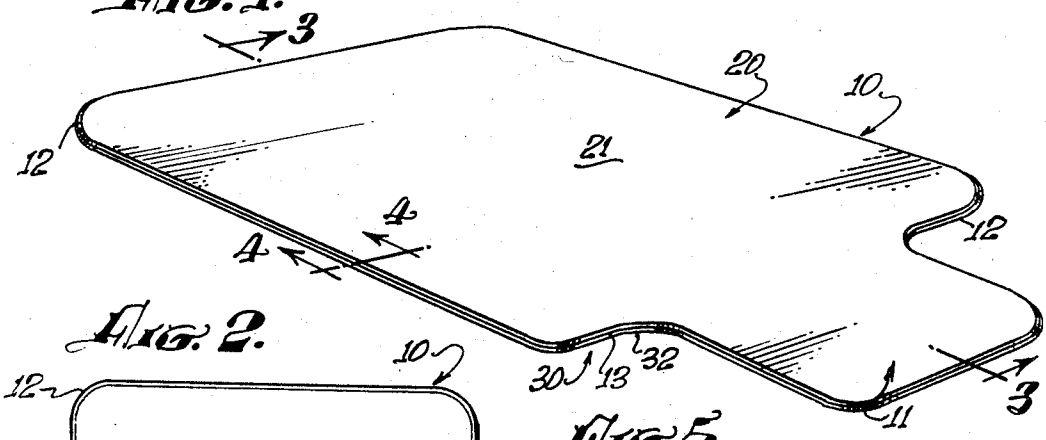


FIG. 2.

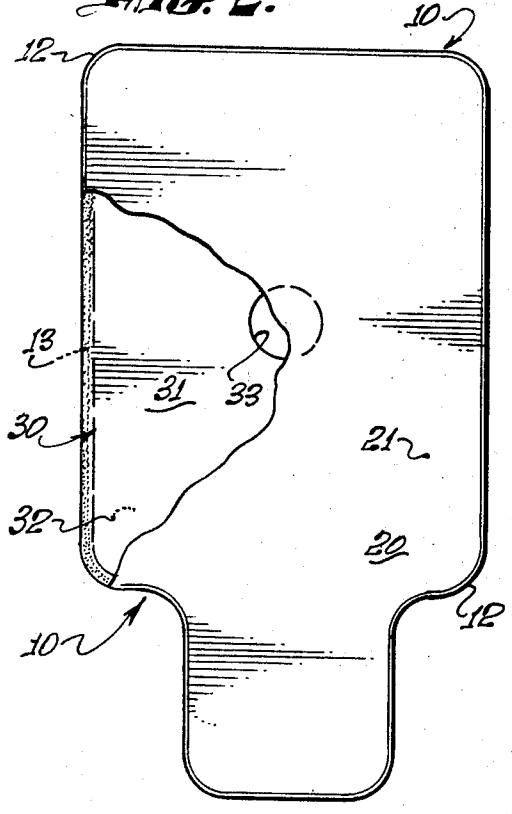


FIG. 5.

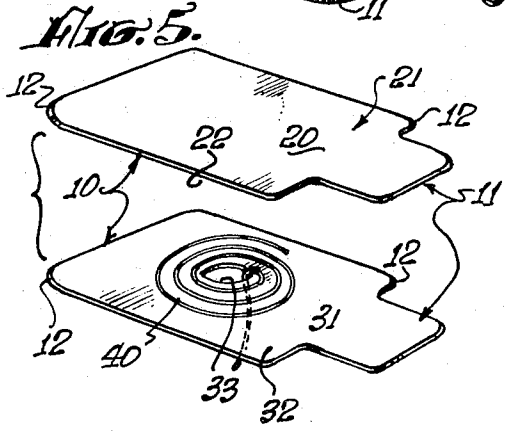


FIG. 6.

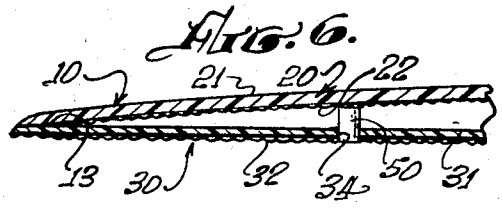


FIG. 3.

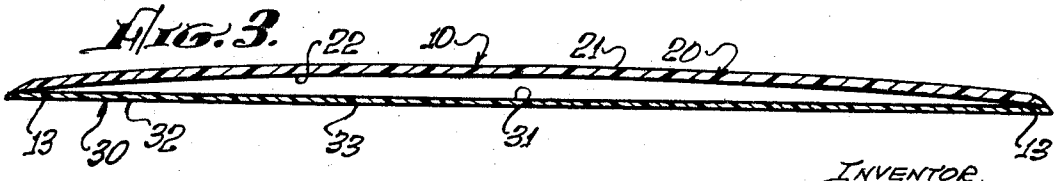
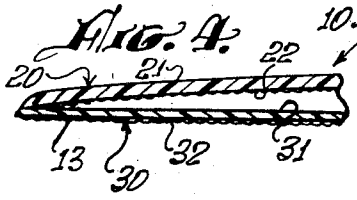


FIG. 4.



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NONCURLING FLOOR PROTECTOR

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Int. Cl. B23p 11/02; A47b 97/00

ABSTRACT OF THE DISCLOSURE

This invention involves floor protectors of the type used with rolling chairs and particularly at, and in conjunction with, the use of such chairs by desks.

The particular protector comprises a sandwich arrangement of two such protectors, one being slightly smaller in size than the other; the two having been joined together so that the one which is slightly larger has the same edge profile and thus becomes bowed in the center, and is under tension in a generally dome shape.

By this arrangement, the edges lay flat upon the floor.

A unique method, utilizing pegs and/or a coil of rope for tensioning by bowing the larger piece during, and prior to, the sealing of the edges of the two is disclosed.

Background of the invention

Field of the invention.—This invention pertains to the field of art relating to floor protectors and floor shields, for the use of rolling and sliding chairs, and in order to protect carpeting, or other floor materials. It particularly involves a sandwiched, prestressed construction of such a protector in order that there be no curling of the edges during use.

Description of the prior art.—The state of the prior art is unknown to the applicant, since none has been found in the exact field of a prestressed, floor shield of the type described.

Outside of my invention in prestressing, such floor protectors always consist of flat piece of hard materials, such as plastic, Masonite, wood, or the like, in which, by the weight of the chair at various places in the area of the protector, the edges curl, creating a safety hazard as well as an unsightly floor protector. The present invention solves the problems of the curling of the edges by placing the floor protector under a slight tension with an upwardly bowed part, so that the edges at all times remain flat upon the surface being protected.

Summary

As indicated in the background of invention, at the present time floor protectors for use under rolling, gliding, or sliding chairs, particularly by stenographers, or executives, at desk positions, and the like, is wide spread. Such floor protectors customarily consist of a sheet of plastic, Masonite, wood, or other relatively rigid material, upon which the chair may roll, or glide, easily and which protects the rug or other floor surface from being destroyed from the action by such chairs.

The biggest disadvantage of such items is that after a short period of use, all of such items previously known become bowed in the shape of a saucer and the edges are curled so that persons walking by, or over, such items frequently trip on them, thus creating a serious hazard. In addition, such items become unsightly and dirty, and the like, can accumulate under the curled edges.

In the present invention, I have discovered that by tensioning the floor protector so that it is in a prestressed and bowed condition, with the bow upward, as an inverted saucer, that the edges will always remain flat. Thus the action of the chair upon such an item of my invention merely has the tendency to flatten the preformed bows,

and the edges continue at all times to lie flat. The principle that I use, in preference, is to utilize two such floor protectors; one slightly smaller than the other, the smaller one being the side which lays upon the floor, and the larger one being the one which is bowed in the form of an inverted saucer.

It is an object of this invention to provide a floor protector which does not curl at the edges.

It is a further object of this invention to provide a prestressed and conditioned floor protector, such that the edges will lie flat on the floor during use.

A further object of the invention is to provide a method of manufacturing a prestressed item of the nature described.

The foregoing, and other objects and advantages, will be quite clear to those skilled in the art, upon reading the detailed specifications which follow, in conjunction with the attached drawings.

Brief description of the drawings

FIGURE 1 is a perspective of a preferred embodiment of the article of this invention;

FIGURE 2 is a top view of the same embodiment shown in FIGURE 1;

FIGURE 3 is a section through 3—3 on FIGURE 1;

FIGURE 4 is an enlarged section of the corner area, as indicated from FIGURE 3;

FIGURE 5 is an exploded view showing a preferred method of creating the bow in the item; and

FIGURE 6 is a modified showing of a method of forming the bow.

Description of the preferred embodiments

The preferred embodiment of this device is shown to consist of an upper piece of relatively rigid material **20**, shaped approximately as shown, with a substantial area **10** for providing space for a chair to roll, or slide, and a tongue **11**, which is normally used to extend beneath a desk in the area of a knee hole so that the feet of the person using this item will normally rest upon such area. Preferably the corners will be rounded as at **12**, although this is not of significance for purposes of rolling the chair, and although this particular device can be made with sharp corners, if desired. It will be clear from the following description that the prestressing arrangement as utilized is effectively applied to this general shape.

The top portion **20** normally has a smooth surface for ease of rolling, gliding, or sliding of chairs across such surface. The bottom portion **30** is the same shape as the top portion, but of slightly smaller size. Preferably the bottom side of the bottom portion **30** will be rough as at **32**, in order that the overall unit will not slide on the rug or floor. Such roughness is easily accomplished by utilization of certain materials which customarily have one side rough, such as certain composition sheet material such as the product known as "Masonite," which is a trade name well known in the art; certain plastics; certain wood products; and the like. In any event, if such surface is not roughened in its natural state, it can be roughened by sanding, grooving, and similar operations, which are clear to those skilled in working with these materials.

The bottom portion in the preferred form has a hole at **33** in its center, which hole is large enough to accommodate a rope, as will be hereinafter described.

From the cross-sectional views, it will be particularly observed that the upper section **20** is bowed slightly, with relation to the lower portion, which is straight and level. This is accomplished by having the upper part **20** of slightly larger dimensions, but exactly the same shape as the lower portion **30**. The lower portion is then placed in a jig, or the like, not shown, and a rope coiled loosely as

indicated in the exploded view, FIGURE 5, is placed upon its surface as indicated with one end dropping through the hole **33**.

The upper portion **20** is now placed upon the rope. The edges of both parts **20** and **30**, are coated with adhesive, such as epoxy, casein, rubberized adhesive, or smilar such materials. The edges are now pressed together as indicated in the enlarged sectional, view **4**, and are held appropriately by clamps, or the like, until the adhesive has set. All of this time, the rope which has been placed in the middle of the lower portion, provides sufficient differential for the edges to appropriately come together and to provide the bow indicated in the upper piece. When the adhesive has completely set around the edges, as indicated at **13** in FIGURE 4, the end of the rope extending below the bottom portion and through the hole **33**, is pulled out and the rope uncoils and removes itself neatly from this area. Special reference should be made to ths system of providing a prestressed, solid, upper, shell, which is believed to be inventive in itself, which might well be used for other purposes, as, for example, table tennis table tops.

Alternate methods of providing this prestressing by bowing the upper portion would be placing a sandbag, for example, over the hole **33**, and after the forming and curing of the adhesive, puncturing the sandbag to remove the sand and the sandbag. An hydraulic bladder could also accomplish a similar result as could a system in which pegs **50**, as indicated in the modified production form FIGURE 6, placed upon the assembly area, with appropriate holes in the bottom of piece **30**, could likewise be used.

After this item has been completely set, it may be used with side **32** on the floor. Walking, rolling of chairs, or other pressure applied to the top, will not cause curling of the edges, but will only result in redistribution of the tensioning forces through the general flexability of the material being used. It is important to note that the material must be somewhat flexible, but should not be materially elastic.

The top is preferably of material relatively thicker in cross-section than the bottom. The bottom is to provide tension only, and, therefore, need not be as thick and heavy as the top which is the portion upon which the chair is used.

It is, also, preferred that the edges be beveled for neatness of appearance and to minimize the possibility of tripping over them.

I have also found that additional tensioning may be provided by providing wires, or straps, in the form of an X across the main portion of the floor protector. This system will be clear to those skilled in the art, and, therefore, has not been illustrated, but consists of placing a wire, strap, or other suitable material across the under side of

corners indicated by the two numerals **12** on FIGURE 2. Another strap would be placed across the other two corners of the main portion of the floor protector, and would cross the first indicated strap or wire. These would be positioned so that they further strengthen the under pad **30**, which is in tension, or they can conceivably be used without such under pad. This is not deemed the preferable method, but is a method of creatinw the upward bow by putting the crisscross straps under tension as indicated, fastened to the four corners by means of rivets, or the like, adhesive, or any other suitable means.

In utilizing the alternate method of tensioning as indicated in this description, but not shown in the drawing, the purpose once again is to bow the upper floor protector **10**, as particularly indicated in FIGURE 3, so that the edges will not curl upwardly as hereinbefore described. It is clear that a series of lacings around the edges of the device might also accomplish the same result and numerous other methods of so pretensioning and bowing this item may occur to those skilled in the art. None of these other methods are considered as desirable as the preferred embodiment shown herein, but are mentioned as having been experimented with by me.

While the embodiments of this invention, shown and described, are fully capable of performing the objects and achieving the advantages desired, they are for illustrative purposes only, and are not intended to place limitations on this invention.

I claim:

1. The method of producing a prestressed member, said method comprising the steps of providing a first member with at least one hole in its surface, placing a sheet of like shape, but larger size, over said first sheet; fastening the edges of said materials together around their circumference, causing the larger to be bowed away from the smaller by tensioning means between said sheets, and removing said tensioning means through said holes so that the larger of said materials remains bowed under tension.

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248—350; 156—163; 52—613